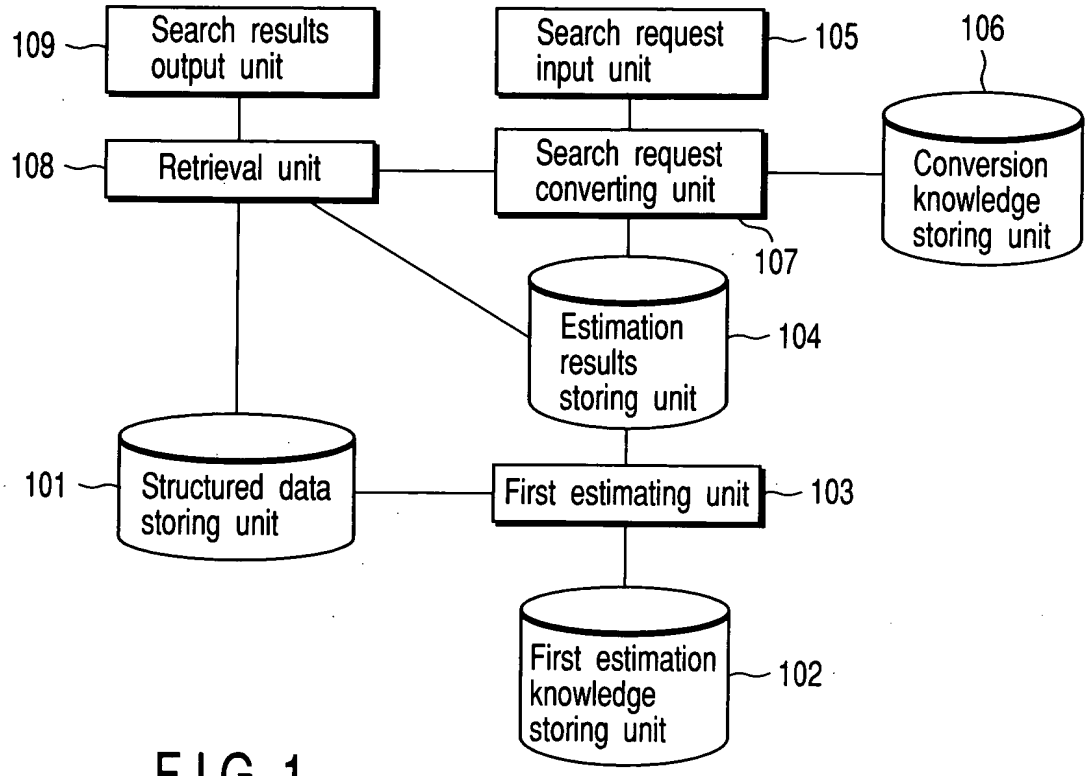

FIG. 1

	Pattern	Label
301	[¥d,]+Yen	Price
302	¥¥[¥d,]+	Price
303	[¥d.]+Hour	Time
304	¥d+Hour¥d+Minute	Time
305	[¥d.]+[cm]?m	Length
306	¥d+[GM]B	Capacity
307	[¥d.]+[GM]Hz	Frequency
	:	:

FIG. 6

FIG. 2

```
<Commodity information>
<Shop name>AA electric store</Shop name>
<Data>
 <Commodity name>PC-A100</Commodity name>
 <Retail price>123,800</Retail price>
 <Size>346.4mm(Width)X327.8mm(Depth)X57mm(Height)</Size>
 <Operating time>2.5 hours</Operating time>
    :
</Data>
</Commodity information>
```

201
211
201

FIG. 3

```
<Commodity information>
<Shop name>AA electric store</Shop name>
<Data>
 <Commodity name>PC-B200</Commodity name>
 <Retail price>Bargain:30%off</Retail price>
 <Size>246.3mm(Width)X137.8mm(Depth)X82mm(Height)</Size>
 <Operating time>3.5 hours</Operating time>
    :
</Data>
</Commodity information>
```

FIG. 4

```
<Commodity information>
<Shop name>YY electric</Shop name>
<Data>
 <TagA>DB3254</TagA>
 <TagB>248.0X199.2X64.7(mm)</TagB>
 <TagC>Campaign price</TagC>
 <TagD>128MB</TagD>
    :
</Data>
</Commodity information>
```

FIG. 5

```
<Commodity information>
<Shop name>YY store</Shop name>
<Data>
 <TagA>DB2230</TagA>
 <TagB>228.0X229.2X78.9(mm)</TagB>
 <TagC>329,000Yen</TagC>
 <TagD>256MB</TagD>
    :
</Data>
</Commodity information>
```

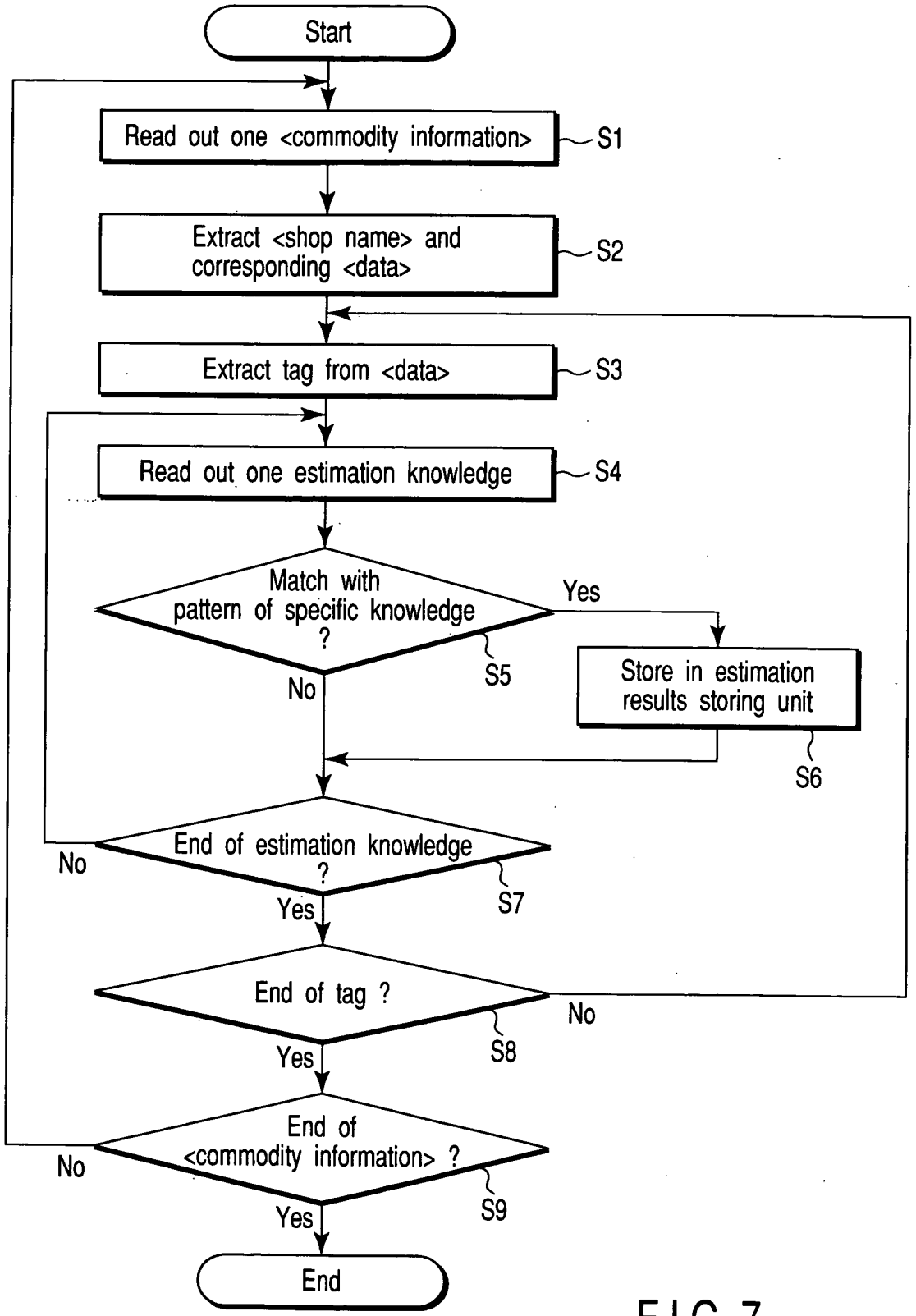
Start
Read out one <commodity information>
S1
Extract <shop name> and corresponding <data>
S2
Extract tag from <data>
S3
Read out one estimation knowledge
S4
Match with pattern of specific knowledge ?
S5
Yes
No
Store in estimation results storing unit
S6
End of estimation knowledge ?
S7
No
Yes
End of tag ?
S8
No
Yes
End of <commodity information> ?
S9
No
Yes
End

FIG. 7

501

Shop name	Tag	Label
AA electric store	Retail price	[Price]
AA electric store	Size	[Length]
AA electric store	Operating time	[Time]
ABC store	Memory	[Capacity]
ABC store	CPU	[Frequency]
YY store	TagB	[Length]
YY store	TagD	[Capacity]
YY store	TagC	[Price]
:	:	:

FIG. 8

```
<Estimation result>
<Semantic role label>Price</Semantic role label>
<Shop name>AA electric store</Shop name>
<Tag>Retail price</Tag>
</Estimation result>
```

FIG. 9

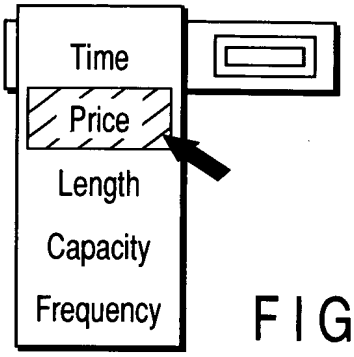

FIG. 11

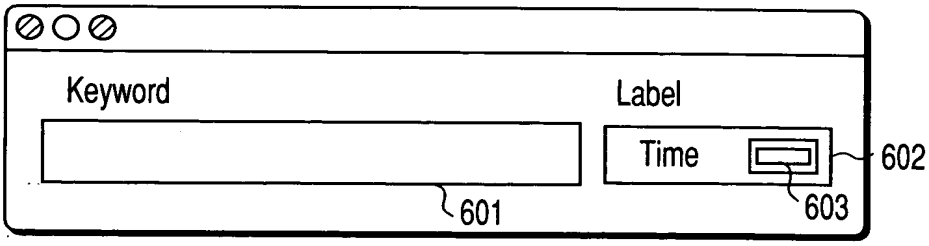

FIG. 10

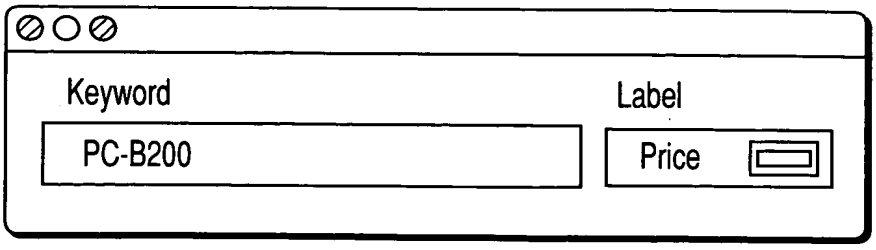

FIG. 12

First conversion knowledge

```
FOR $a IN/Estimation result[Label=" ##ROLE## " ]
RETURN <Tag list>{$a/Shop name}{$a/Tag}</Tag list>
```

FIG. 13

Second conversion knowledge

Label	Conversion knowledge
[Price]	FOR $a IN/Commodety information WHERE contains{$a//text()," ##KEYWORD## " }AND $a/Shop name= " ##SHOP## " RETURN <Commodity information> <Shop name>##SHOP##</Shop name> <Price>{$a/Data/##PATH##/text()}<Price> </Commodity information>
[Time]	FOR $a IN/Commodity information WHERE contains{$a//text()," ##KEYWORD## " }AND $a/Shop name= " ##SHOP## " RETURN <Commodity information> <Shop name>##SHOP##</Shop name> <Time>{$a/Data/##PATH##/text()}<Time> </Commodity information>
⋮	⋮

702

FIG. 14

First search statement

```
FOR $a IN/Estimation result[Label=" Price" ]
RETURN <Tag list>{$a/Shop name}{$a/Tag}</Tag list>
```

FIG. 17

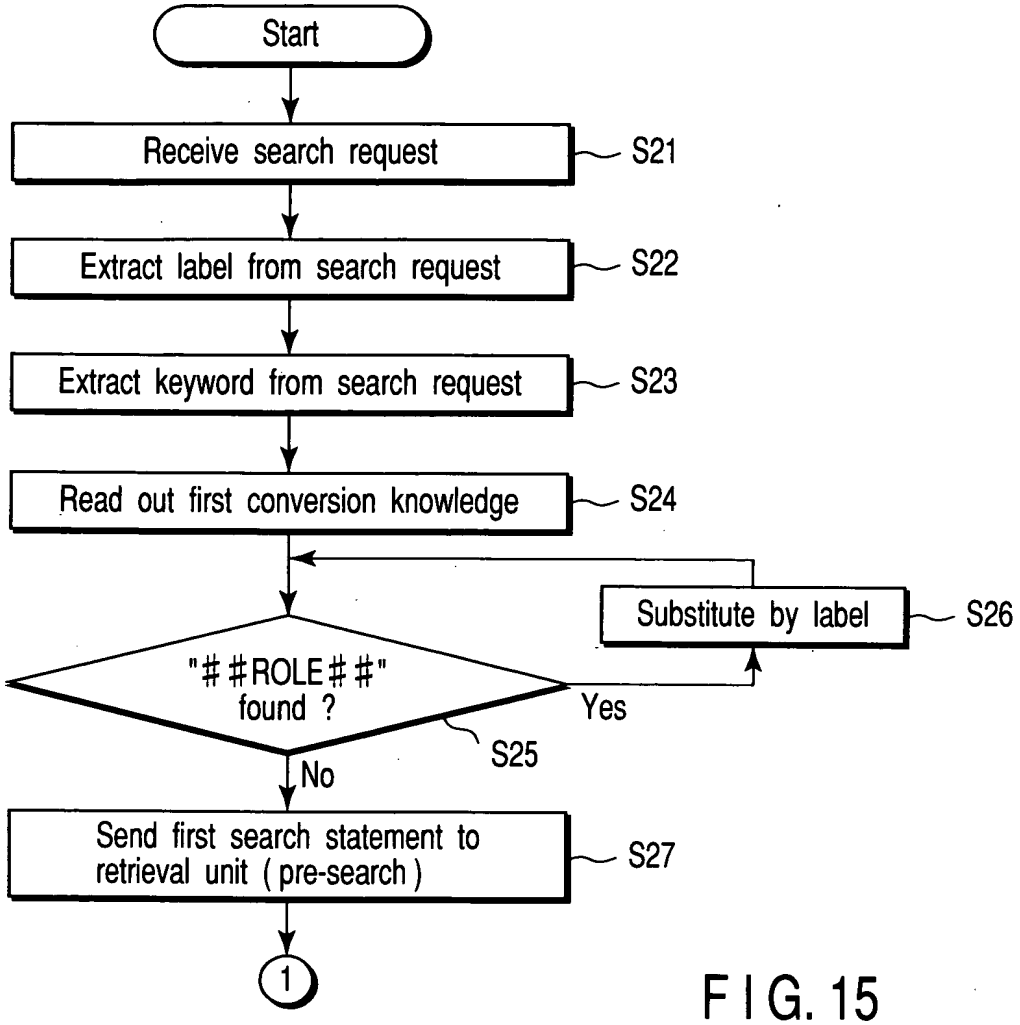

FIG. 15

Second statement

```
FOR $a IN/Commodity information
WHERE contains( $a//text(),″ PC-B200″ )AND $a/Shop name=″ AA electric store″
RETURN
<Commodity information>
<Shop name>AA electric store</Shop name>
<Price>{ $a/Data/Retail price/text()}</Price>
</Commodity information>
```

FIG. 18

Pre-search result

```
<Tag list><Shop name>AA electric store</Shop name><Tag>Retail price</Tag></Tag list>
<Tag list><Shop name>YY store</Shop name><Tag>TagC</Tag></Tag list>
```

FIG. 19

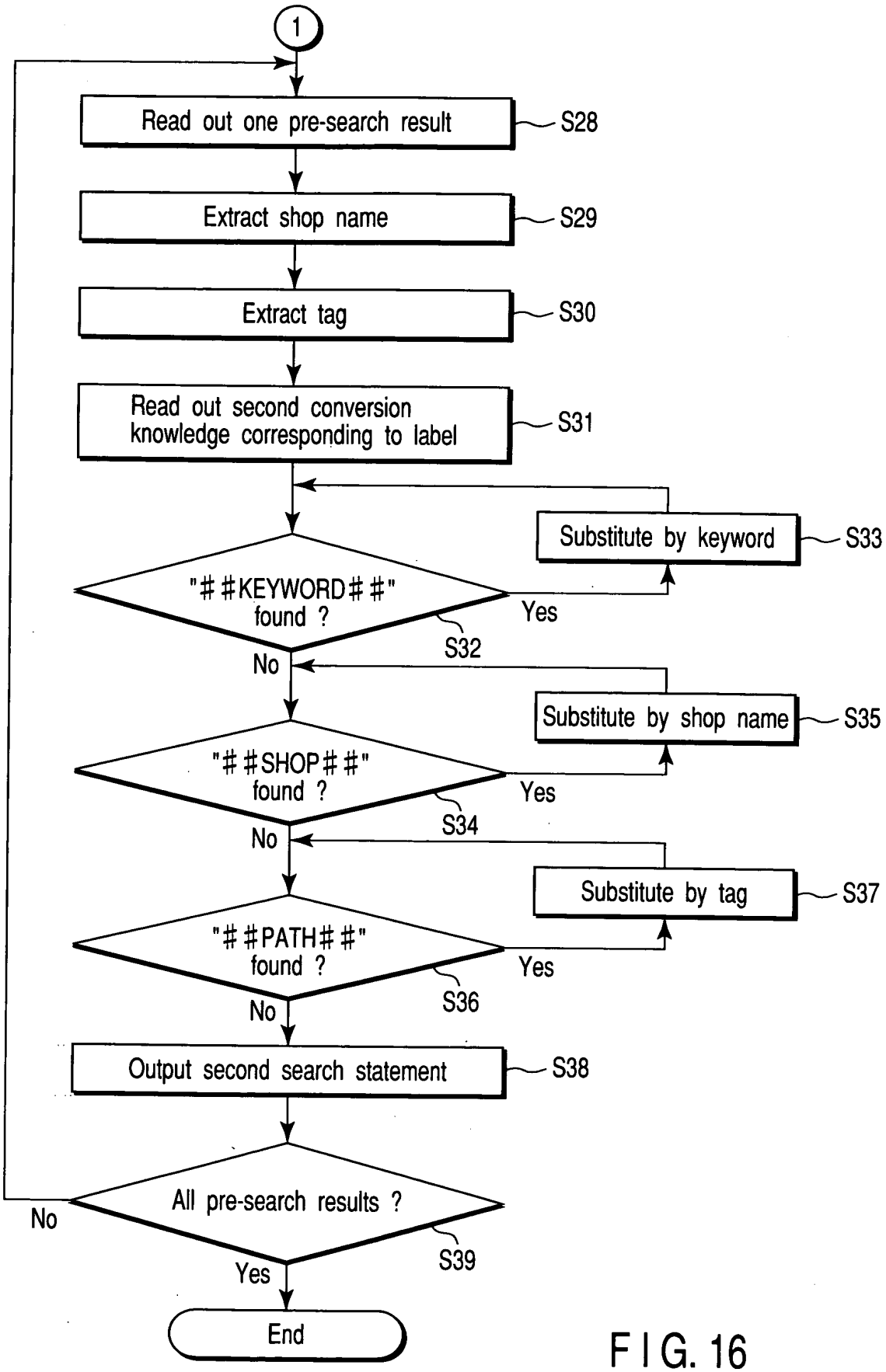
1
Read out one pre-search result
S28
Extract shop name
S29
Extract tag
S30
Read out second conversion knowledge corresponding to label
S31
Substitute by keyword
S33
"##KEYWORD##" found ?
Yes
S32
No
Substitute by shop name
S35
"##SHOP##" found ?
Yes
S34
No
Substitute by tag
S37
"##PATH##" found ?
Yes
S36
No
Output second search statement
S38
All pre-search results ?
No
S39
Yes
End

FIG. 16

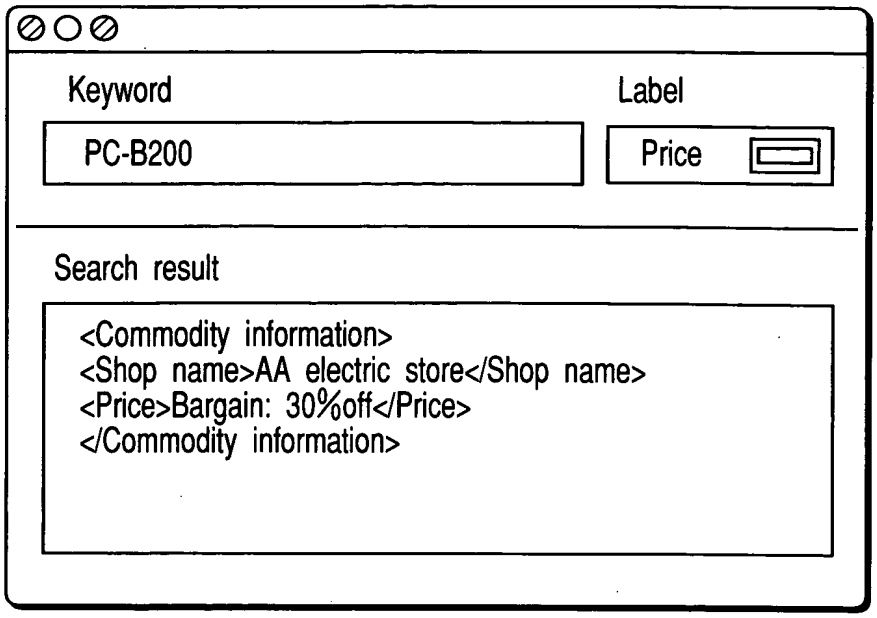
Keyword
Label
PC-B200
Price
Search result
<Commodity information>
<Shop name>AA electric store</Shop name>
<Price>Bargain: 30%off</Price>
</Commodity information>

FIG. 20

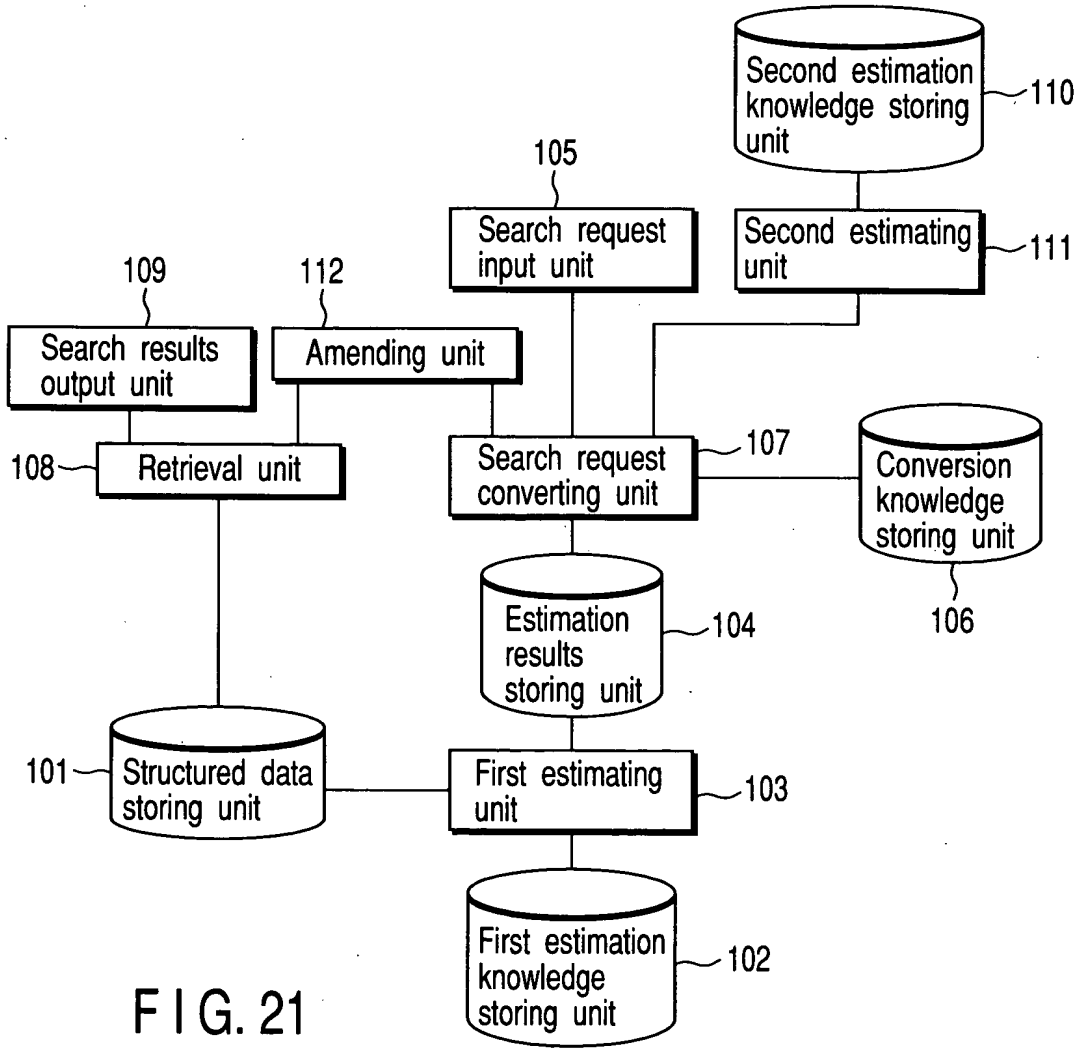
Second estimation knowledge storing unit
110
105
Search request input unit
Second estimating unit
111
109
112
Search results output unit
Amending unit
108
Retrieval unit
Search request converting unit
107
Conversion knowledge storing unit
106
Estimation results storing unit
104
101
Structured data storing unit
First estimating unit
103
First estimation knowledge storing unit
102

FIG. 21

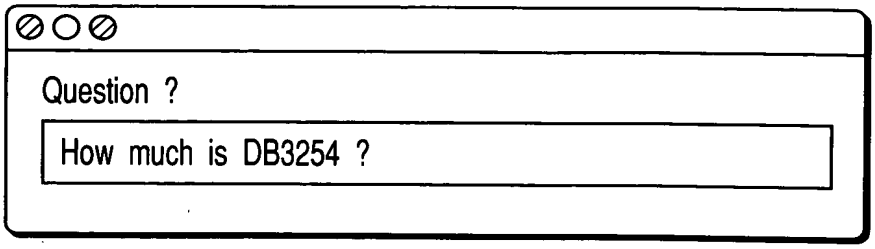

FIG. 22

Pattern	Label
Value<noun>	[Price]
Price<noun>	[Price]
How much<noun>	[Price]
Size<noun>	[Length]
Time<noun>	[Time]
CPU<english>	[Frequency]
:	:

FIG. 23

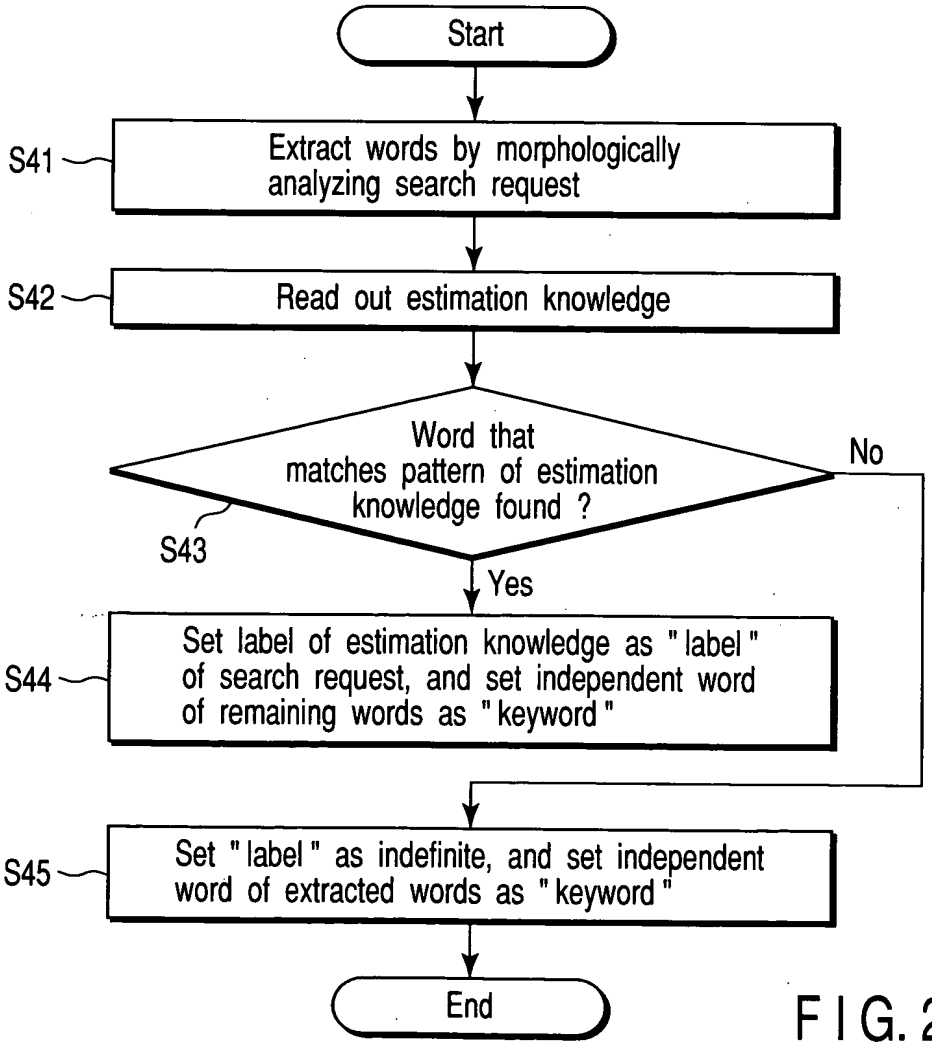

FIG. 24

Label	Conversion knowledge
[Indefinite]	FOR $a IN/Commodity information WHERE contains($a//text()," ##KEYWORD##")AND $a/Shop name= " ##SHOP##" RETURN {$a}

FIG. 25

```
FOR $a IN/Commodity information
WHERE contains($a//text()," DB3254" )AND $a/Shop name=" AA electric store"
RETURN
<Commodity information>
<Shop name>AA electric store</Shop name>
<Preice>{$a/Data/Retail price/text()}</Price>
</Commodity information>
```

FIG. 26

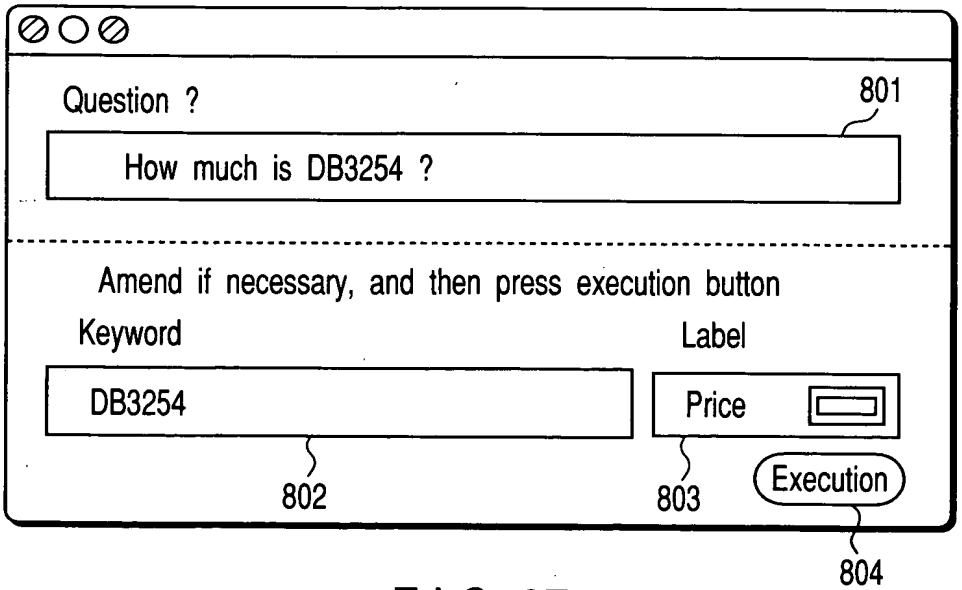

FIG. 27

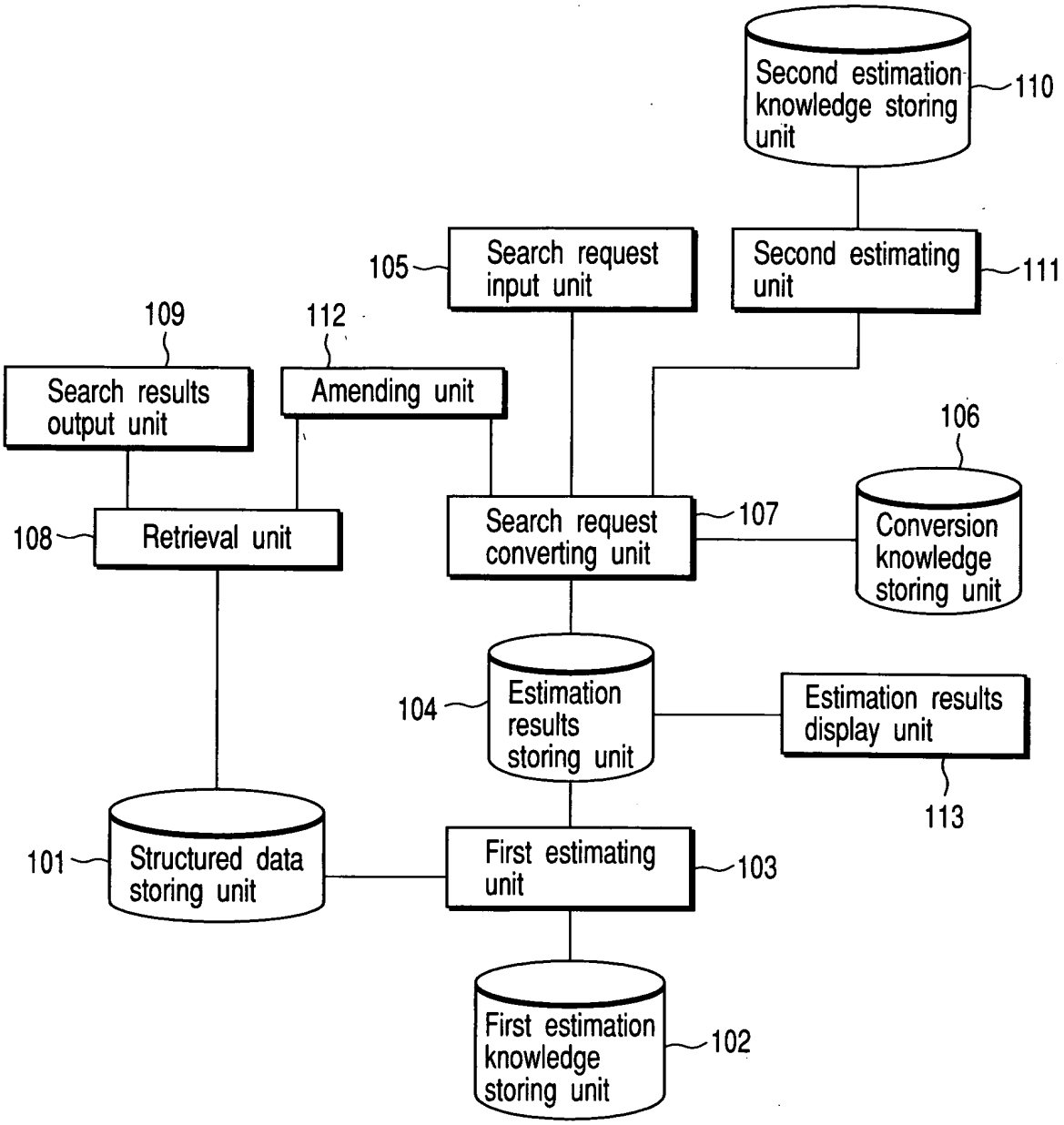
Second estimation knowledge storing unit
110
105
Search request input unit
Second estimating unit
111
109
112
Search results output unit
Amending unit
106
108
Retrieval unit
Search request converting unit
107
Conversion knowledge storing unit
104
Estimation results storing unit
Estimation results display unit
113
101
Structured data storing unit
First estimating unit
103
First estimation knowledge storing unit
102

FIG. 28

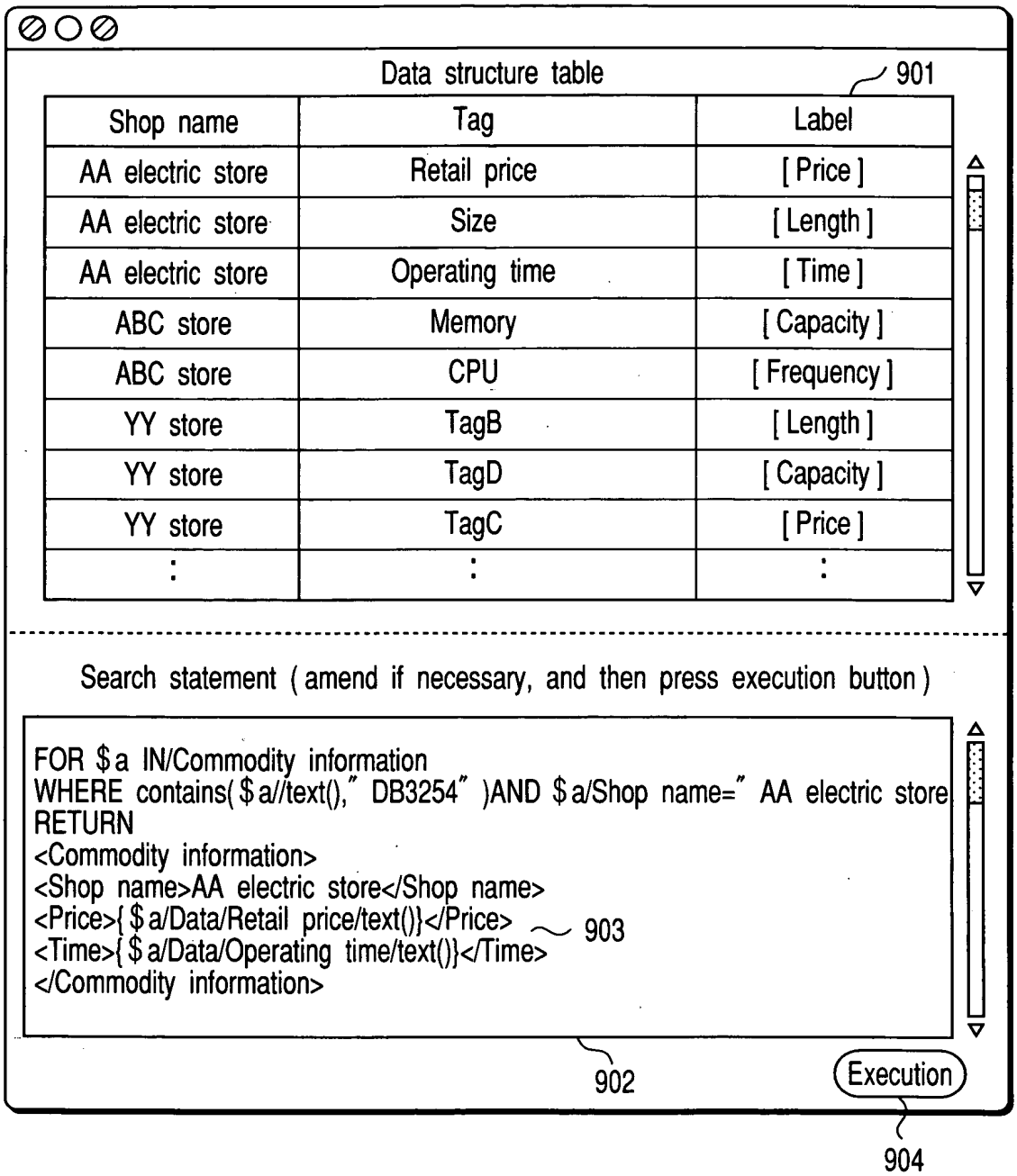
Data structure table
901
Shop name
Tag
Label
AA electric store
Retail price
[Price]
AA electric store
Size
[Length]
AA electric store
Operating time
[Time]
ABC store
Memory
[Capacity]
ABC store
CPU
[Frequency]
YY store
TagB
[Length]
YY store
TagD
[Capacity]
YY store
TagC
[Price]
Search statement (amend if necessary, and then press execution button)
FOR $a IN/Commodity information
WHERE contains($a//text()," DB3254")AND $a/Shop name=" AA electric store
RETURN
<Commodity information>
<Shop name>AA electric store</Shop name>
<Price>{ $a/Data/Retail price/text()}</Price>
<Time>{ $a/Data/Operating time/text()}</Time>
</Commodity information>
903
902
Execution
904

FIG. 29